



Caltrans Division of Research,
Innovation and System Information

Research Results

Transportation
Safety and
Mobility

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Project Title:

Quick Clearance for Major
Traffic Incidents

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Product Category: New or improved
business practice, procedure, or process

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Improving Clearance Time for Major Traffic Incidents

*Implementing appropriate traffic incident management tools and
strategies can shorten response time*

WHAT WAS THE NEED?

After a major traffic incident, quick response and clearance are important for the safety of those involved and to minimize the resulting congestion. Prompt medical care, efficient removal of damaged vehicles, and rapidly addressing potential hazardous materials or unsafe conditions requires coordination and shared protocols. Major incidents—those that need more than 30 minutes to clear—are the largest contributor to congestion after capacity constraints. In addition, secondary incidents caused by unsuspecting approaching motorists can increase both the number and severity of injuries. For these reasons, the Federal Highway Administration has established a 90-minute clearance time. In California, however, the average clearance time is over three hours. It is critical to investigate the causes of the extended clearance times to propose appropriate solutions for traffic incident management (TIM).

WHAT WAS OUR GOAL?

The goal was to identify and implement strategies to reduce the clearance time of major incidents.



Caltrans provides a safe, sustainable,
integrated and efficient transportation
system to enhance California's
economy and livability.

WHAT DID WE DO?

Caltrans, in partnership with the University of California, Berkeley Partners for Advanced Transportation Technology program, examined TIM operations throughout the state, distinguishing the differences in managing safe and quick incident clearance activities among rural and urban districts and differing geographical regions. Based on input and data collected from Caltrans, California Highway Patrol, and other stakeholders, the researchers identified sources of delay and recommended appropriate TIM tools and strategies shown to be successful in reducing incident clearance times.

WHAT WAS THE OUTCOME?

The study pinpointed various causes for prolonged clearance times, some connected to working with other agencies and contractors. Hazardous material spills and damage to utilities can add many hours to the clearance time due to the delayed response from hazmat specialists or the utility company. Recent changes in Caltrans policy of limiting employees storing maintenance equipment and vehicles at home also have resulted in delayed response because of the added travel time to pick up equipment from the Caltrans location before responding to an incident. Response times differ between rural and urban areas. Each district has considerations to take into account, such as the time needed to drive distances in sparsely populated regions or divert traffic during peak travel times. The research initiated recommendations to improve TIM practices and communication among responders and proposed holding regularly scheduled meetings and workshops to review ongoing problems and keep responders up to date on best practices.

Date	County	Route	Duration	Causes
3/7/2012	Kern	5	17:29	Big rig brake fire, hauling HAZMAT
11/29/2011	Kern	5	15:16	Jack-knife big rig on off-ramp
4/25/2011	Kern	58	14:06	Car vs. Big Rig head on collision, fatalities
2/24/2011	Tulare	65	12:58	Transformer falls into roadway
7/12/2011	Kern	119	12:20	Power line pole falls onto roadway
8/27/2011	Kern	119	11:39	Power lines fall onto roadway
3/29/2011	Kern	5	11:05	Big rig on fire carrying HAZMAT
4/8/2011	Tulare	99	10:47	Big rig crashes in work zone loses cargo
6/15/2011	Kern	178	10:27	Ruptured gas line in work zone
7/17/2011	Fresno	99	10:14	Police pursuit results in pedestrian fatality

Sample qualitative examination of
the 10 worst incidents in Caltrans
District 6

WHAT IS THE BENEFIT?

Adopting a comprehensive incident clearance program that incorporates appropriate operational procedures, addresses the issues of equipment and infrastructure, and establishes laws and policies enhances the safety of responders and motorists while reducing incident-related congestion and delay. Decreasing the major incident clearance times statewide increases reliability throughout the transportation system.

LEARN MORE

To view the complete report:
www.dot.ca.gov/research/researchreports/reports/2014/final_report_task_2245.pdf

District	Average	Median 50 th Percentile	95 th Percentile	Standard Deviation	Number of Samples
3	3:23	2:12	9:12	3:41	178
4	3:19	1:43	12:56	4:04	145
6	4:39	3:41	10:58	3:12	128

Overall incident duration in hours and
minutes of major incidents per Caltrans
district



Responding to major incidents can require
extra equipment and waiting for specialists.